

## REMARKS

Claims claims 6, 14-17, and 20 are amended herein.

The Examiner objected to the drawings, alleging that “the drawing sheets are not an acceptable size”. In response, Applicants have submitted amended drawings that are in an acceptable size.

The Examiner rejected claims 6, 14-17 and 19-20 under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner rejected claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over Ayano et al. (4,383,903) in view of McCormick et al. (5,215,860).

The Examiner rejected claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over Gaku et al. (4,533,727) in view of McCormick et al. (5,215,860) and Shimp (4,709,008).

The Examiner rejected claims 13-15 and 19-20 under 35 U.S.C. §103(a) as being unpatentable over Ayano et al. in view of McCormick et al. (5,215,860), as applied to claims 1, 7 and 8 above, and further in view of Christie et al. (5,250,848) or Swei (5,182,173).

The Examiner rejected claims 13-15 and 18-20 under 35 U.S.C. §103(a) as being unpatentable over Gaku et al. (4,533,727) in view of McCormick et al. (5,215,860) and Shimp (4,709,008), as applied to claims 1, 7 and 8 above, and further in view of Christie et al. (5,250,848) or Swei (5,182,173).

Applicants respectfully traverse, with the following arguments, the rejections under §112, and §103.

## 35 U.S.C. §112

The Examiner rejected claims 6, 14-17 and 19-20 under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner alleges: "There is no antecedent basis in claim 1 for the recitation "photoinduced polymerizable cyanate ester composition" recited in claims 6 and 14-17. Claim 1 recites a "composition for reinforcing a bond". Applicant could amend claim 1 to recite "photoinduced polymerizable cyanate ester composition for reinforcing a bond" or delete "photoinduced polymerizable cyanate ester" from the dependent claims." In response, Applicants have amended claims 6 and 14-17 to delete "photoinduced polymerizable cyanate ester" in accordance with the Examiner's suggestion.

The Examiner alleges: "There is no antecedent basis in claim 1 for the recitation in claim 15 of a surface creating agent. It is suggested that claim 15 should be dependent from claim 14 or set forth composition of claim 1 further comprising a surface treating agent wherein the amount of surface treating agent ..." In response, Applicants have amended claim 15 to depend from claim 14 in accordance with the Examiner's suggestion.

The Examiner alleges: "There is no antecedent basis in claim 7, which recites "a process for reinforcing a bond" for the recitation in claim 20 "process for providing a photoinduced polymerizable cyanate ester composition"..." In response, Applicants have amended claim 20 to clarify the invention.

**35 U.S.C. §103: Ayano in View of McCormick**

The Examiner rejected claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over Ayano et al. (4,383,903) in view of McCormick et al. (5,215,860).

Applicants respectfully contend that claims 1, 7, and 8 are not unpatentable over Ayano in view of McCormick, because Ayano in view of McCormick does not teach or suggest each and every feature of claims 1, 7, and 8. For example, Ayano in view of McCormick does not teach or suggest the feature “a filler for controlling thermal expansion of said composition and for assisting in reinforcing said bond” in claims 1 and 8, and a similar feature in claim 7. The Examiner alleges that “Ayano et al teach that the disclosed compositions can contain fillers ... (column 10, lines 41-47).”

In response, Applicants respectfully note that col. 10, lines 41-47 of Ayano mentions the existence of fillers (and other additives) in Ayano’s curable composition, but does not identify any specific filler substances and does not identify the amount of the filler (e.g., weight percent concentration) in the composition. Ayano does not teach or suggest any of said fillers or other additives are capable of “controlling thermal expansion of said composition and ... assisting in reinforcing said bond”. On the contrary, Ayano teaches in col. 10, lines 41-44 said fillers and other additives exist “to impact specific properties”. What are these “specific properties”? Since Ayano identifies “fibrous reinforcement” as an example of said additive, it is clear that the “specific properties” include the structural properties of the composition relating to the composition being fibrously reinforced. Since Ayano identifies “pigments” and “dyestuffs” as example of said additives, it is clear that the “specific properties” include the color of the composition. Since Ayano identifies “thickening agents” as an example of said additives, it is

clear that the “specific properties” include the thickening properties of the composition. Since Ayano identifies “lubricants” as an example of said additives, it is clear that the “specific properties” include the lubricating properties of the composition. Since Ayano identifies “flame retardants” as an example of said additives, it is clear that the “specific properties” include the flame retardation characteristics the composition. Since Ayano identifies “fillers” as an example of said additives, it is clear that the “specific properties” include the fullness of the composition. Applicants contend that the specific properties specifically identified by Ayano due not include the ability to reinforce a bond. Applicants further contend that the specific properties specifically identified by Ayano due not include the ability to control the thermal expansion of the composition, which is known to one of ordinary skill in the art as the coefficient of thermal expansion (CTE). Thus, Applicants maintain that Ayano does not teach or suggest that the composition includes a filler controls thermal expansion of the composition and assists in reinforcing said bond as required in claims 1, 7, and 8. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of “a filler for controlling thermal expansion of said composition and for assisting in reinforcing said bond”.

Moreover, claims 1, 7, and 8 require that the filler satisfy not one requirement but rather two requirements, namely “a filler for controlling thermal expansion of said composition **and** for assisting in reinforcing said bond” (emphasis added). Ayano does not even come close to teaching or suggesting inclusion of a filler that satisfies **both** of said two requirements. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of “a filler for controlling thermal

expansion of said composition and for assisting in reinforcing said bond”.

Even if Ayano taught or suggested a composition that could potentially impact thermal expansion of the composition (which Ayano does not teach or suggest as explained *supra*), claims 1, 7, and 8 require that the filler do much more than merely impact said thermal expansion of the composition. For example, claim 7 requires that **an effective amount** of the filler be added to the cyanate ester for **controlling** said thermal expansion of the composition. Similarly, claims 1 and 8 require that the filler actually **control** said thermal expansion of the composition, which requires that the filler be present in the composition in sufficient quantity to actually **control** said thermal expansion of the composition. Ayano does not teach or suggest that the filler be present in sufficient quantity to control the thermal expansion of the composition. Indeed, Ayano teach the opposite. Ayano teaches in col. 10, lines 41-47 that the additives (including the filler) “do not impair the essential properties of the resulting resin.” The preceding statement in Ayano is intended to limit the quantity of filler so that the filler cannot materially impair the essential properties of the resulting resin,” since if the filler were present in large amounts in the composition then the filler would obviously impair the essential properties of the composition. In other words, if the filler is limited in quantity so as not to impair the essential properties of the resulting resin, then the filler will consequently be limited in quantity so as not to be able to control the thermal expansion of the composition. By so limiting the quantity of filler, Ayano is teaching away from having sufficient quantity of filler to control thermal expansion of the composition. In contrast, the specification of the present patent application discloses on page 24, lines 29-32 that “[t]he compositions of the present invention contain ... about 40% to about 75% by weight and preferably about 50% to about 60% by weight of the

filler.” In any event, Ayano does not teach or suggest that the filler be present in sufficient quantity so as to be able to control the thermal expansion of the composition as required by claims 1, 7, and 8. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1 and 8 of “a filler for controlling thermal expansion of said composition” (emphasis added) and with respect to the corresponding feature in claim 7 of “adding to the cyanate ester substance **an effective amount** of a filler for **controlling** thermal expansion of said composition” (emphasis added).

Additionally, the Examiner does not even allege that Ayano teaches or suggest that the composition includes a filler capable of control the thermal expansion of the composition. Indeed, the final office action mailed 02/21/2003 is totally silent as to the thermal expansion of the composition. Because the Examiner did not even address the issue of the thermal expansion of the composition, the rejection of claims 1, 7, and 8 is improper, and Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of “a filler for controlling thermal expansion of said composition.

...”.

In addition, Ayano in view of McCormick does not teach or suggest the feature “wherein said metal cation in the organometallic complex is selected from the group consisting of elements of Periodic Groups IVB, VB, VIB, VIIB, and VIIIB” in claims 1, 7, and 8. The Examiner alleges that “McCormick et al, in analogous art, teach that an organometallic compound curing agent can be used in an “energy-curable’ cyanate composition.” However, the Examiner provides no evidence that McCormick teaches or suggests “wherein said metal cation

in the organometallic complex is selected from the group consisting of elements of Periodic Groups IVB, VB, VIB, VIIB, and VIIIB". Indeed, **the Examiner does not even allege** that Ayano teaches or suggest the preceding feature of claims 1, 7, and 8 (i.e., the metal cation being selected from Periodic Groups IVB, VB, VIB, VIIB, and VIIIB). The final office action mailed 02/21/2003 is totally silent as to the preceding feature of claims 1, 7, and 8. Because the Examiner did not even address the preceding feature of claims 1, 7, and 8, the rejection of claims 1, 7, and 8 is improper, and Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claims 1, 7, and 8.

Based on the preceding arguments, Applicants respectfully maintain that claims 1, 7, and 8 are not unpatentable over Ayano in view of McCormick, and that claims 1, 7, and 8 are in condition for allowance. Since claims 6, 14-17, and 19 depend from claim 1, Applicants contend that claims 6, 14-17, and 19 are likewise in condition for allowance. Since claims 18 and 20 depend from claim 1, Applicants contend that claims 18 and 20 are likewise in condition for allowance. Since claim 13 depends from claim 8, Applicants contend that claim 13 is likewise in condition for allowance.

**35 U.S.C. §103: Gaku in View of McCormick and Shimp**

The Examiner rejected claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over Gaku et al. (4,533,727) in view of McCormick et al. (5,215,860) and Shimp (4,709,008).

Applicants respectfully contend that claim 1 is not unpatentable over Gaku in view of McCormick and Shimp, because Gaku in view of McCormick and Shimp does not teach or suggest each and every feature of claim 1. For example, Gaku in view of McCormick and Shimp does not teach or suggest the feature “a filler for controlling thermal expansion of said composition and for assisting in reinforcing said bond” in claims 1 and 8, and a similar feature in claim 7. The Examiner alleges that Gaku teaches that “[f]illers, such as silica, and reinforcing agents may be added”

In response, Applicants contend that Gaku does not teach “a filler for controlling thermal expansion of said composition”, as required in claims 1, 7, and 8. Applicants further contend that Gaku does not teach the “filler for assisting in reinforcing said bond”, as required in claims 1, 7, and 8. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of “a filler for controlling thermal expansion of said composition and for assisting in reinforcing said bond”.

Applicants respectfully note that Gaku does not teach or suggest the use of a filler such as silica for “a filler for controlling thermal expansion of said composition **and** for assisting in reinforcing said bond” (emphasis added). Gaku does not teach or suggest inclusion of a filler such as silica that satisfies **both** of said two requirements. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to

the feature in claims 1, 7, and 8 of “a filler for controlling thermal expansion of said composition” and the same filler “for assisting in reinforcing said bond”.

Even if Gaku taught or suggested a composition that could potentially impact thermal expansion of the composition (which Gaku does not teach or suggest as explained *supra*), claims 1, 7, and 8 require that the filler do much more than impact said thermal expansion of the composition. For example, claim 7 requires that **an effective amount** of the filler be added to the cyanate ester for **controlling** said thermal expansion of the composition. Similarly, claims 1 and 8 require that the filler actually **control** said thermal expansion of the composition, which requires that the filler be present in the composition in sufficient quantity to actually **control** said thermal expansion of the composition. Gaku does not teach or suggest that the filler be present in sufficient quantity to control the thermal expansion of the composition, and Gaku does not identify the amount of the filler (e.g., weight percent concentration) in the composition. Indeed, Gaku teach the opposite. Gaku teaches in col. 8, lines 23-26 that the fillers “do not impair the nature of the curable resin (A) or the cured product.” The preceding statement in Gaku is intended to limit the quantity of filler so that the filler cannot materially impair the nature of the curable resin or the cured product, since if the filler were present in large amounts in the composition then the filler would obviously impair the nature of the curable resin or the cured product. In other words, if the filler is limited in quantity so as not to impair the nature of the curable resin (or the cured product), then the filler will consequently be limited in quantity so as not to be able to control the thermal expansion of the composition. By so limiting the quantity of filler, Gaku is teaching away from having sufficient quantity of filler to control thermal expansion of the composition. In contrast, the specification of the present patent application

discloses on page 24, lines 29-32 that “[t]he compositions of the present invention contain ... about 40% to about 75% by weight and preferably about 50% to about 60% by weight of the filler.” In any event, Gaku does not teach or suggest that the filler be present in sufficient quantity so as to be able to control the thermal expansion of the composition as required by claims 1, 7, and 8. Thus, Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1 and 8 of “a filler for controlling thermal expansion of said composition” (emphasis added) and with respect to the corresponding feature in claim 7 of “adding to the cyanate ester substance **an effective amount** of a filler for **controlling** thermal expansion of said composition” (emphasis added).

Additionally, **the Examiner does not even allege** that Gaku teaches or suggest that the composition includes a filler capable of control the thermal expansion of the composition. Indeed, the final office action mailed 02/21/2003 is totally silent as to the thermal expansion of the composition. Because the Examiner did not even address the issue of the thermal expansion of the composition, the rejection of claims 1, 7, and 8 is improper, and Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of “a filler for controlling thermal expansion of said composition. ...”.

In addition, Gaku in view of McCormick does not teach or suggest the feature “wherein said metal cation in the organometallic complex is selected from the group consisting of elements of Periodic Groups IVB, VB, VIB, VIIIB, and VIIIB” in claims 1, 7, and 8. The Examiner alleges that “McCormick et al, in analogous art, teach that an organometallic

compound curing agent can be used in an "energy-curable' cyanate composition." However, the Examiner provides no evidence that McCormick teaches or suggests "wherein said metal cation in the organometallic complex is selected from the group consisting of elements of Periodic Groups IVB, VB, VIB, VIIB, and VIIIB". Indeed, **the Examiner does not even allege** that Gaku teaches or suggest the preceding feature of claims 1, 7, and 8 (i.e., the metal cation being selected from Periodic Groups IVB, VB, VIB, VIIB, and VIIIB). The final office action mailed 02/21/2003 is totally silent as to the preceding feature of claims 1, 7, and 8. Because the Examiner did not even address the preceding feature of claims 1, 7, and 8, the rejection of claims 1, 7, and 8 is improper, and Applicants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claims 1, 7, and 8.

Based on the preceding arguments, Applicants respectfully maintain that claims 1, 7, and 8 are not unpatentable over Gaku in view of McCormick and Shimp, and that claims 1, 7, and 8 are in condition for allowance. Since claims 6, 14-17, and 19 depend from claim 1, Applicants contend that claims 6, 14-17, and 19 are likewise in condition for allowance. Since claims 18 and 20 depend from claim 1, Applicants contend that claims 18 and 20 are likewise in condition for allowance. Since claim 13 depends from claim 8, Applicants contend that claim 13 is likewise in condition for allowance.

### **Claim Amendments**

Applicants respectfully request that the claim amendments be entered to place the claims in better condition for appeal. Since the claim amendments conform to the Examiner's suggestions for amending the claims in response to rejections under 35 U.S.C. 112, second paragraph, the claim amendments effectively narrow the issues by removing the issues associated with the 35 U.S.C. 112, second paragraph rejections.

## CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that claims 1, 6-8 and 13-20 and the entire application meet the acceptance criteria for allowance, and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invite the Examiner to contact Applicants' representative at the telephone number listed below.

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